Check List the journal of biodiversity data

NOTES ON GEOGRAPHIC DISTRIBUTION

Check List 11(2): 1572, February 2015 doi: http://dx.doi.org/10.15560/11.2.1572
ISSN 1809-127X © 2015 Check List and Authors

First record of *Drymoreomys albimaculatus* Percequillo, Weksler & Costa, 2011 (Rodentia, Cricetidae, Sigmodontinae) in Rio de Janeiro state, Brazil

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Abstract: Here we report the first record of *Drymoreomys albimaculatus* Percequillo, Weksler & Costa, 2011 (Cricetidae, Sigmodontinae) in Rio de Janeiro state, Brazil. One specimen was captured at Serra da Bocaina National Park, municipality of Paraty. The specimen was captured in a pitfall trap, in a mixed habitat of forest and bamboo. The karyotype showed 2n = 62 and FN = 62, which is similar to the previously described for the species.

Key words: Atlantic Forest, karyotype, Oryzomyini, Serra da Bocaina National Park, Sigmodontinae

The tribe Oryzomyini (Rodentia, Cricetidae, Sigmodontinae) comprises a speciose group of New World rodents. They are widely distributed in the Neotropical and Nearctic regions, and occupy a great variety of habitats (Weksler and Percequillo 2011). Recently, a new genus and species — *Drymoreomys albimaculatus* Percequillo, Weksler & Costa, 2011 — was described from the Brazilian Atlantic Forest, one of the most threatened tropical biomes in the world.

Drymoreomys albimaculatus is endemic to the Atlantic Forest, with occurrence records in the slopes of the Serra do Mar, from São Paulo to Santa Catarina, in localities with elevations ranging from 650 to 1,200 m (Percequillo et al. 2011). There is a gap in the species distribution, with no records in the Paraná state. However, it seems to be a sampling artifact instead of a disjunctive distribution (Percequillo et al. 2011). *Drymoreomys albimaculatus* was recorded at five conservation units in São Paulo (Morro Grande Forest Reserve, Bananal Ecological Station, Intervales State Park, Boracéia Biological Station, and Serra do Mar State Park), and two in Santa Catarina (Municipal Natural Park Nascentes do Garcia, and Serra do Tabuleiro State Park [Percequillo et al. 2011; Suárez-Villota et al. 2013; Figure 1]). Here we report the first record of *D. albimaculatus* in the Rio de Janeiro state, Brazil, also in a Conservation Unit.

The study was carried out in the surroundings of the highway RJ-165, which crosses the Serra da Bocaina National Park, connecting the municipalities of Cunha (São Paulo state) and Paraty (Rio de Janeiro state). This area was previously surveyed for mammals in 2010 and 2011 (see Delciellos et al. 2012). As part of a Mammal Monitoring Program (IBAMA/MMA process no. 02001.003937/2008-18, authorization no. 248/2013), since June 2013, non-volant small mammals have been sampled quarterly at four sites along the RJ-165, using live and pitfall traps (Table 1). At each sampling site, two transects (290 m) were established, each with 30 trap stations. Each station had either a Tomahawk® placed on the floor or a Sherman® in the understory between 1.5 and 2.5 m above the ground. Additionally, other ten Sherman® traps were placed in the canopy in each transect in the first two sampling sessions. However, most structures that suspended Sherman® into the canopy were stolen, and from the third sampling session these ten livetraps were also set in the understory. For livetraps, in the previous study was realized a sampling effort of 780 traps-night (Delciellos et al. 2012), and in the present study 7,756 traps-night, totalizing an accumulative sampling effort of 8,536 traps-night until June 2014.

Pitfall-traps consisted of 60 liters plastic buckets 10 m apart, arranged in transects from three to ten buckets, according to terrain characteristics, such as inclination and amount of rocks. Buckets were connected by a plastic-sheet drift fence 0.5 m high, buried 0.1 m below and extended perpendicularly to the ground, in order to induce the capture of wandering individuals. Each of the four sampling sites had twenty buckets. In the previous study a sampling effort of 455 buckets-night was realized (Delciellos et al. 2012), and in the present study 1,411 buckets-night, totalizing an accumulative sampling effort of 1,866 buckets-night until June 2014.

Live and pitfall-traps remained active for five consecutive nights in each trapping session. Individuals trapped were identified at the species level whenever possible, weighed using spring scales, sexed, measured (heady-body and tail lengths), and marked with numbered ear-tags in the first capture (Ear Tags, National Band & Tag Co., Newport, Kentucky, USA). Unidentified specimens were collected, prepared as vouchers, and deposited at the Museu Nacional, Rio de Janeiro (MN). Karyotypes were prepared for all rodents (Sigmodontinae and Echimyidae). Chromosomes in metaphases were obtained with in vitro culture (Andrade et al. 2004). Conventional Giemsa staining (5%) was used to determine the diploid number (2n) and the fundamental autosomal number (FN). Karyotypes were mounted,

Table 1. Geographic coordinates and altitude of each transect of live (LT) and pitfall (PT) traps used for sampling non-volant small mammals along the RJ-165 highway in Serra da Bocaina National Park, state of Rio de Janeiro, Brazil. Datum SAD69, except lines with *(Datum WGS84).

Site	Transect	Geographic coordinates	Elevation (m)
1	A – LT	23°11′23″ S, 044°50′18″ W*	1193
	B – LT	23°11′24″ S, 044°50′19″ W*	1193
2	A – LT	23°11′53″ S, 044°50′28″ W*	1122
	B – LT	23°11′55″ S, 044°50′24″ W*	1122
3	A – LT	23°12′06″ S, 044°49′45″ W	803
	B – LT	23°12′23″ S, 044°49′38″ W	731
4	A – LT	23°11′27.5″ S, 044°50′41″ W	1054
	B – LT	23°11′30.2″ S, 044°50′39″ W	1048
1	A – PT	23°11′22″ S, 044°50′15″ W	1179
	B – PT	23°11′20″ S, 044°50′20″ W	1170
2	A – PT	23°11′54″ S, 044°50′38″ W	1120
	B – PT	23°11′54″ S, 044°50′24″ W	1101
3	A – PT	23°12′06″ S, 044°49′49″ W	785
	B – PT	23°12′18″ S, 044°49′33″ W	771
4	A – PT	23°11′23.1″ S, 044°50′45.1″ W	1076
	B – PT	23°11′28.6″ S, 044°50′35.5″ W	1081

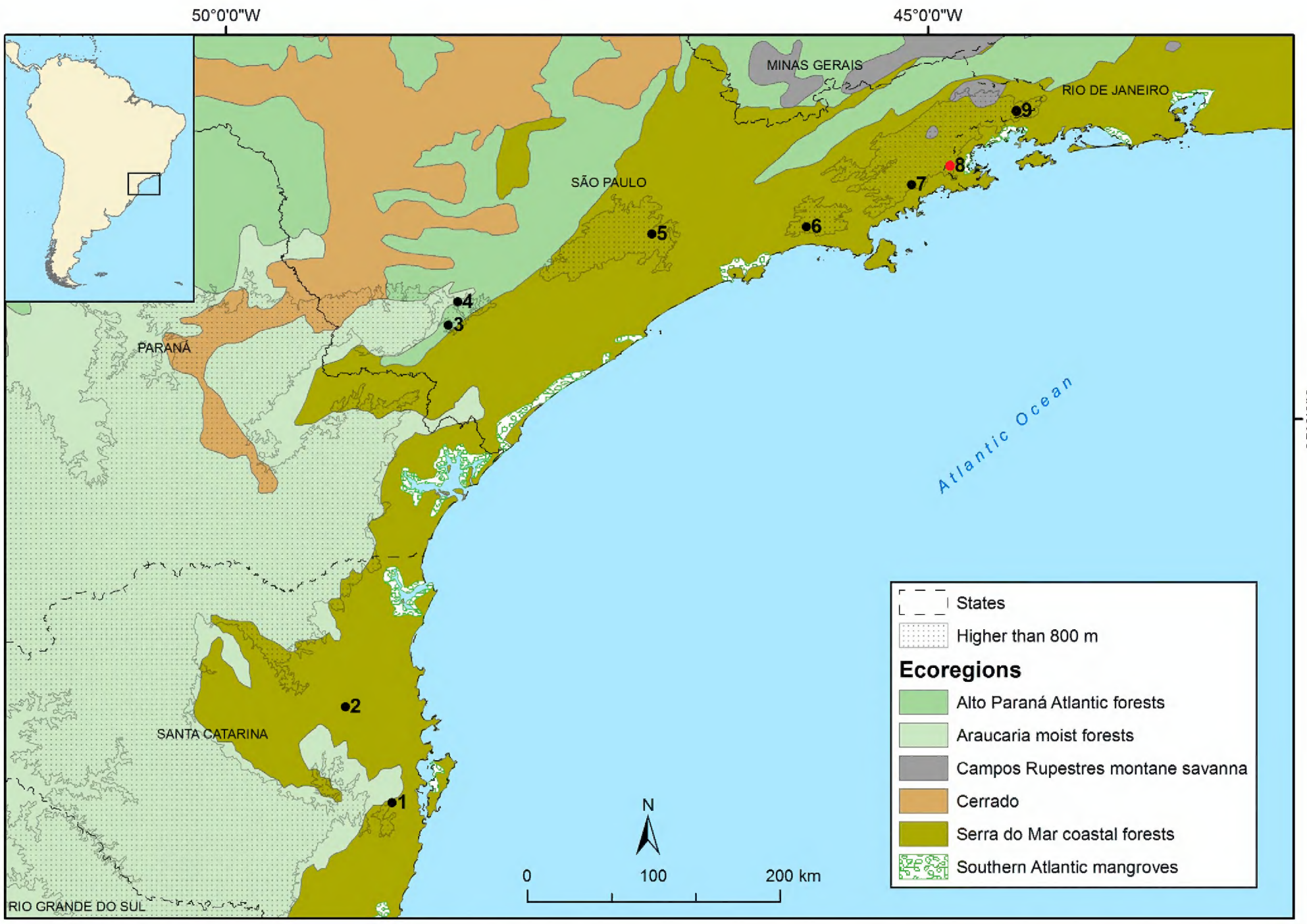

Figure 1. Geographic distribution of *Drymoreomys albimaculatus* in the Brazilian Atlantic Forest. Black circles correspond to previous records for the species according to Percequillo *et al.* (2011) and Suárez-Villota *et al.* (2013). The red circle corresponds to the new record for Serra da Bocaina National Park, municipality of Paraty, RJ, Brazil. Occurrence records for Santa Catarina: Serra do Tabuleiro State Park (1), Municipal Natural Park Nascentes do Garcia (2). Occurrence records for São Paulo: Intervales State Park (3), Mina Limeira, Ribeira Grande (4), Morro Grande Forest Reserve (5), Boracéia Biological Station (6), Serra do Mar State Park (7), Bananal Ecological Station (9). Occurrence record for Rio de Janeiro: Serra da Bocaina National Park (8).

and deposited at the Laboratório de Mastozoologia, Universidade do Estado do Rio de Janeiro.

On 13 January 2014, one young female of *D. albimaculatus* (MN 81462) was captured at Serra da Bocaina National Park (23°11′53.3″ S, 044°50′34.4″ W, Datum SAD69, elevation of 1,107 m), municipality of Paraty (Figure 1). The specimen was captured in a pitfall trap (Figure 2), in a mixed habitat of forest and bamboo. The young female (M3 occluded; Figure 3) measured 100 mm of head-body and 111 mm of tail lengths, with body mass of 28 g.

Figure 2. Young female of *Drymoreomys albimaculatus* (MN 81462) captured in a pitfall trap in Serra da Bocaina National Park, municipality of Paraty, RJ, Brazil. Photo: Ana C. Delciellos.

Figure 3. Dorsal, ventral, and lateral views of the skull, and lateral view of the mandible of *Drymoreomys albimaculatus* (MN 81462) from Serra da Bocaina National Park, municipality of Paraty, RJ, Brazil.

The specimen was identified as *D. albimaculatus* by the observation of the following anatomical features (Percequillo et al. 2011): dorsal pelage very long, dense and lax; white ventral patches of fur in the gular and thoracic regions (Figure 4); brown patches on dorsal surface of feet; short nasal tube formed by anteriorly projected nasals and premaxillary bones; incisive foramina long and wide; multiple posterolateral palatal pits recessed in shallow fossae; alisphenoid strut developed; absence of stapedial foramen, squamoso-alisphenoid groove, and sphenofrontal foramen absent; presence of protostyle in M1 and of anterolophid on lower molars (Figure 3).

The karyotype had a diploid number (2n) of 62 and a fundamental autosomal number (FN) of 62 (Figure 5). The autosome complement is composed of 29 acrocentric and one metacentric chromosome pairs. Both X chromosomes are large submetacentrics. The karyotype is similar to the one described by Suárez-Villota et al. (2013) for specimens from Santa Virgínia, Serra do Mar State Park, São Paulo.

The individual of *D. albimaculatus* reported here was captured about 35 km from Serra do Mar State Park, Santa Virgínia, SP (see Suárez-Villota et al. 2013), and 65 km from Bananal Ecological Station, Bananal, SP (see Percequillo et al. 2011), the nearest previous records for the species. The new locality reported here does not extend the species distribution, but increase to nine the number of localities where the species has been recorded (Figure 1). The new locality is also in a Conservation Unit (Serra da Bocaina National Park), which is important for the species conservation. Also, the new record corroborates that this species is more commonly found in continuous forest (Percequillo et al. 2011). As other species recently described, *D. albimaculatus* do not have an official conservation status. Percequillo et al. (2011) suggests that this species should be considered as near threatened, according to the criteria established by the International Union for Conservation of Nature (IUCN).

Drymoreomys albimaculatus can be considered as a rare species in the local non-volant small mammal community, because of their low capture rate. Only one individual was captured after the mentioned accumulated trap effort, which resulted in 1,190 captures of at least 26 species of non-volant small mammals. The local community is dominated by species of the genus *Delomys* (107 individuals), mainly *D. dorsalis* (Hensel, 1873), *Euryoryzomys russatus* (Wagner, 1848) (95 individuals), and *Marmosops incanus* (Lund, 1840) (66 individuals [see Delciellos et al. 2012]).

Figure 4. Dorsal and ventral views of the dried skin showing the white patches of fur in the gular and thoracic regions (red circle) of *Drymoreomys albimaculatus* (MN 81462) from Serra da Bocaina National Park, municipality of Paraty, RJ, Brazil.

In addition of *D. albimaculatus*, the use of pitfall traps in the study area proved to be useful to sample such rare species as *Blarinomys breviceps* (Winge, 1887) (see Delciellos et al. 2012), *Juliomys rimofrons* Oliveira & Bonvicino, 2002 (see Fonseca et al. 2013), *Phyllomys* spp., and *Monodelphis* spp. (present study). After the specimen captured in 2011 (Delciellos et al. 2012), other three specimens of *B. breviceps* were already captured in the study area. Three out of five specimens of *Phyllomys* spp. sampled in the study area were captured in pitfall-traps despite of its arboreal habits. This also seems to be the case of *D. albimaculatus*, although little is known about its ecology. The morphology of *D. albimaculatus* resembles that of the arboreal taxa in some aspects (e.g., very developed plantar pads), but it was previously captured almost exclusively in pitfall-traps (Percequillo et al. 2011). The capture of arboreal species in pitfall-traps has been recently reported for some species — e.g., *Rhagomys rufescens* (Thomas, 1886) (see Pinheiro et al. 2004), *Phaenomys ferrugineus* (Thomas, 1894) (see Passamani et al. 2011), and *J. rimofrons* (see Fonseca et al. 2013).

The present study adds *D. albimaculatus* to the list

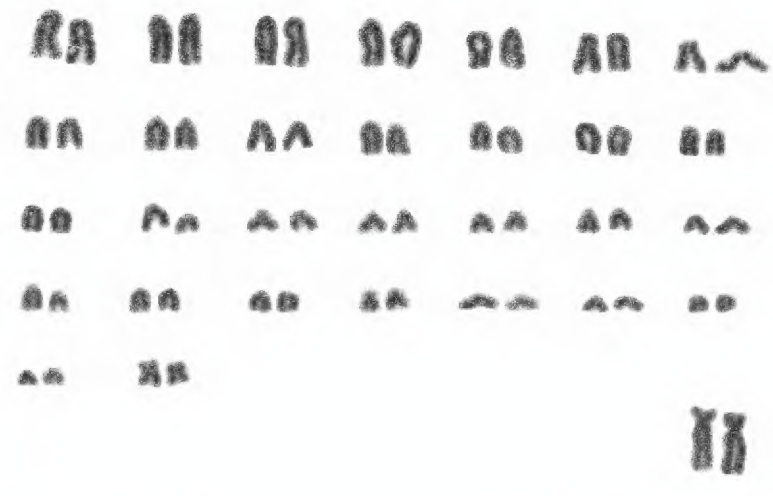

Figure 5. Karyotype (stained with conventional Giemsa) of a female of *Drymoreomys albimaculatus* (MN 81462) from Serra da Bocaina National Park, municipality of Paraty, RJ, Brazil. Chromosome complement with 2n = 62 and FN = 62. The sexual pair is featured in the lower right.

of mammals from Rio de Janeiro (for previous lists see Rocha et al. 2004; Bonvicino et al. 2008; Reis et al. 2011), and also to the mammalian fauna of Serra da Bocaina National Park (see Delciellos et al. 2012). Additional sampling efforts, using pitfall traps, should be done in Rio de Janeiro and along the potential distribution area of the species (e.g., Paraná state) to better understand its distribution and conservation status in Brazil.

ACKNOWLEDGEMENTS

We are in debt to the researchers who assisted in the fieldwork, mainly Lucas H. Possi, Natali C. Pineiro, and Priscilla L. Zangrandi. Rafael Nogueira, Ana L. Araujo, and Josué Setta provided logistical support through the general coordination of the Estrada Parque Paraty-Cunha RJ-165 Project / Universidade do Estado do Rio de Janeiro. Maíra da Motta, Luiz F. Cardoso, José Maria and Pedro provided logistical support and assistance during fieldwork. Departamento de Estradas de Rodagem do Estado do Rio de Janeiro, and Secretaria de Obras, Governo do Rio de Janeiro, provided financial support. L. Geise receives fellowships from the Nacional Council for Scientific and Technological Development, Brazil (CNPq) and Programa Prociência, Universidade do Estado do Rio de Janeiro (UERJ/Prociência).

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Authors' contribution statement: ACD collected the specimen; MA and LG prepared the karyotype; MW identified the specimen; ORB coordinated the faunal project of RJ-165; all authors wrote the text.

Received: October 2014
Accepted: January 2015
Editorial responsibility: Ricardo Moratelli